

**REMARKS**

Claims 17-36 were pending in the instant application. By this Amendment, Applicants have canceled claims 17-36 without prejudice and have added new claims 37-48. Applicants refer to a March 12, 2003 telephone conference between Applicants' undersigned attorney, Patrick T. Skacel, and Examiner Snedden in which the numbering and content of the then pending claims was discussed. There had been a discrepancy between Applicants' understanding of the numbering of the claims and that of the Examiner. During the conference, Mr. Skacel and Examiner Snedden agreed that the claims presented in Applicants' October 24, 2002 Amendment would be deemed the pending claims, but would be renumbered as claims 17-36. To avoid any further confusion, Applicants have now canceled claims 17-36, and presented new claims beginning with number 37. Mr. Skacel and Examiner Snedden also agreed that the subject matter of Applicants' original claim 17, directed to a method of using a sequence as a diagnostic marker, but not yet examined, would be properly included in the group elected in response to the previous Restriction Requirement. Accordingly, Applicants have added new claim 48, directed to the subject matter of this claim. Support for all new claims can be found in the specification and claims as originally filed. Specifically, claims 37-40 correspond to canceled claim 17, claims 41-42 correspond to canceled claim 18, claims 43-44 correspond to canceled claim 19, claims 45-46 correspond to canceled claim 20, and claim 47 corresponds to canceled claim 33. New claim 48 corresponds to original claim 17. Additional support for new claim 48 can be found, *inter alia*, in the specification at page 6, lines 18-23 and page 7, lines 14-26.

Applicants also note that the Sequence Listing currently on file in the application does not correctly reflect the identities of the sequences as disclosed in the specification. In the Sequence Listing, the identities of sequences 2 and 3 had been inadvertently reversed. Accordingly, SEQ ID NOS: 1 and 2 refer to nucleic acid sequences, and SEQ ID NOS: 3 and 4 refer to corresponding protein sequences, respectively. Applicants are therefore submitting a Substitute Sequence Listing in both paper and computer readable form, which is consistent with the sequence identifiers as disclosed in the specification. Support for this correction is found, *inter alia*, at pages 4-6 in the specification and in the pages following the claims in the originally filed application. Entry of the substitute Sequence Listing into the application is respectfully requested. It is hereby stated that the content of the Sequence Listing information recorded on the computer readable form is identical to the Sequence Listing recorded on paper and contains no new matter. Applicants moreover assert that the present Amendment does not introduce any new matter, and thus, its entry is requested. Upon entry of the present Amendment, claims 37-48 will be pending and under examination.

#### **Examiner's Objections to the Drawings**

The Examiner objected to the drawings for the reasons indicated on the Form PTO-948 which accompanied the January 30, 2003 Office Action. The Examiner indicated that corrected drawings are required to be submitted in reply to the Action.

In response, Applicants have prepared and are concurrently submitting corrected drawings, which Applicants believe will overcome the Examiner's objection. Accordingly,

Applicants respectfully request that the Examiner reconsider and withdraw the objection to the drawings.

**Claim Objection**

The Examiner objected to claim 17 because in part (a), the claim recited "a sequence as shown in SEQ ID NO: 1 or 2." The Examiner suggested amending the claim to recite "a sequence of SEQ ID NO: 1 or 2."

In response, Applicants note that claim 17 has been canceled by this Amendment. The new claims being presented do not recite the language objected to by the Examiner, and thus, Applicants respectfully request that the Examiner reconsider and withdraw the objection.

**Claim rejections under 35 U.S.C. § 101**

The Examiner rejected claims 17-19 under 35 U.S.C. § 101 as allegedly being directed to non-statutory subject matter. The Examiner has taken the position that the claims recite a peptide of natural origin and "do not show the hand of man." The Examiner has suggested inserting the words "isolated" or "purified" into the claims.

In response, Applicants point out that new claim 37 recites an "isolated nucleic acid sequence." Applicants believe that the inclusion of the word "isolated" in the new claims obviates the Examiner's rejection. Accordingly, Applicants respectfully request that the Examiner reconsider and withdraw the rejection under 35 U.S.C. § 101.

**Examiner's rejections under 35 U.S.C. § 112, first paragraph**

The Examiner rejected claims 17-20 and 33 under 35 U.S.C. § 112, first paragraph, as allegedly being only partially enabled. Specifically, the Examiner stated that the specification is enabling for a DNA sequence of SEQ ID NO: 1 and a DNA encoding the protein of SEQ ID NO: 2, but that the specification does not reasonably provide enablement for all sequences that would hybridize to the above sequences or all genomic sequences from all species for the above sequences. Applicants note that, as described above, SEQ ID NO: 2 is in fact a nucleotide sequence, not a protein sequence. Nevertheless, the Examiner has essentially taken the position that the specification is enabling for the subject matter of parts a and b of claim 17, (the disclosed DNA sequences and DNA sequences encoding the same proteins), but not for the subject matter of parts c-e of claim 17. The Examiner also has asserted that the specific stringent conditions of hybridization are not disclosed in the specification, and that there is no guidance as to any genomic sequence containing SEQ ID NOS: 1 and 2, such as location of introns and exons, and position of the gene on the chromosome. The Examiner moreover indicated that there is no guidance in identifying sequences from all species as encompassed by the claims. The Examiner has thus concluded that it would take undue experimentation for one of skill in the art to be able to practice the invention commensurate in scope with the claims.

In response, Applicants respectfully traverse the Examiner's rejection. Applicants assert that the newly presented claims are fully enabled by the specification. With respect to the claims' recitation of stringent conditions for hybridization, Applicants point out that one of skill in the art would certainly understand the meaning of the term "stringent conditions" and thus

would be able to carry out a hybridization procedure based on the teachings of the specification, when a nucleotide sequence is known. A laboratory manual well known in the art as a standard work, (Molecular Cloning: A Laboratory Manual, Second Edition, Sambrook, Fritsch, and Maniatis) exemplifies this. Among other things, the Sambrook, et al. manual sets forth in detail the various conditions and procedures for achieving hybridization, in which perfect base pairs occur and mismatches are excluded. Such procedures have been well known in the art for a long period of time, and provide clear evidence that hybridization as recited in the Applicants' claims is easily achievable by one of ordinary skill.

With respect to the Examiner's concerns about the enablement of the claims directed to genomic sequences. Applicants assert that one of skill in the art, in possession of the claimed sequences, would be able to easily identify the location of introns and exons by methods known in the art. With known computer programs, sequences can be readily analyzed and corresponding divisions made. Regarding the Examiner's position that there is no guidance for identifying sequences from all species encompassed by the claims, Applicants point out that the language from canceled claim 17, part (e), which forms the basis for this ground of the Examiner's rejection, does not appear in the newly presented claims. Accordingly, Applicants maintain that the claims, as newly presented, are fully enabled by the specification. Applicants therefore respectfully request that the Examiner reconsider and withdraw the rejection under 35 U.S.C. §112, first paragraph.

**Rejection under 35 U.S.C. §112, second paragraph**

The Examiner rejected claims 17-20 and 33 under 35 U.S.C. §112, second paragraph, as allegedly being indefinite. Specifically, the Examiner stated that claim 17, and its dependent claims, which recite "a DNA sequence" of SEQ ID NO: 2 is indefinite because the sequence is an amino acid sequence, not a DNA sequence.

In response, Applicants believe this rejection is fully overcome by the presentation of the new claims and the clarification of the sequence identities as set forth above.

The Examiner indicated that the term "stringent" in claim 17, part (c), renders the claim indefinite because, in the opinion of the Examiner, one of skill in the art would not be reasonably apprised of the metes and bounds of "stringent."

In response, Applicants respectfully traverse the Examiner's rejection. As discussed above, the term "stringent" as it is used in the present claims is well known in the art, and thus, one of skill would indeed fully understand its meaning. Accordingly, the claims reciting "stringent" are not indefinite.

The Examiner asserted that claim 17, part (e), is indefinite because it is unclear what sequence differences would be due to its origin from a different species. The Examiner also indicated that "capable of" (presumably as it is used in claim 18), does not equate to "must invariably occur" and thus this term renders claims reciting it also indefinite. Finally, the Examiner asserted that claim 33 is indefinite in its recitation of "or a part thereof," because it is unclear which part of the sequence may be used as a diagnostic marker.

In response, without conceding the correctness of the Examiner's positions, but to advance prosecution of the subject application, Applicants have presented new claims which do not include the language cited by the Examiner.

In view of the above remarks, Applicants assert that the newly presented claims are not indefinite. Accordingly, Applicants respectfully request that the Examiner reconsider and withdraw the rejections under 35 U.S.C. §112, second paragraph.

**Examiner's rejections under 35 U.S.C. § 102**

The Examiner rejected claims 17-20 under 35 U.S.C. §102(b) as allegedly being anticipated by Reddy, et al. (U.S. Patent No. 4,923,805). The Examiner stated that Reddy, et al. teaches human FSH, which differs in origin from the *Xenopus* sequences as recited in claim 17, part (e). The Examiner further stated that Reddy, et al., teach follicle stimulating hormone (FSH) which possesses the biological function of modulating cell division as a promoter of estrogen synthesis and follicle cell growth. (Examiner points to claim 18 in this regard). Moreover, the Examiner asserted that Reddy, et al. teaches the production of FSH using an expression vector that contains expression control sequences. (Examiner points to claims 19 and 20). The Examiner then concluded that the Reddy, et al. reference anticipates the claimed invention.

The Examiner also rejected claims 17 and 33 under 35 U.S.C. §102(b) as allegedly anticipated by Sager, et al. (U.S. Patent No. 4,923,805). According to the Examiner, Sager, et al. describes the process of subtractive hybridization as a general method for recovering genes that

are expressed in normal cells but not in closely related tumor cells. The Examiner stated that Sager, et al. further describes the isolation of three clones by subtractive hybridization of normal and cancerous mammary cells. The Examiner asserted that the genes corresponding to these clones are expressed by all normal mammary epithelial cells, but not by any primary mammary tumors or mammary tumor cell lines. According to the Examiner, one such gene encodes keratin 5, which is said to be a valuable marker to distinguish normal and primary tumor cells in culture. The Examiner asserted that keratin 5 differs in origin from the *Xenopus* DNA sequences of SEQ ID NO: 1 or 2, and thus anticipates the claimed invention.

In response, without conceding the correctness of the Examiner's position, but to advance prosecution of the subject application, Applicants have presented new claims which do not recite the language previously included in claim 17, part (e), upon which the Examiner's rejections are based. Moreover, Applicants point out that neither FSH nor keratin 5 can induce oocyte maturation and neither is comparable to Applicants' claimed sequences. FSH is a hormone that is not known to modulate cell division directly and keratin 5 has nothing to do with cell division. Accordingly, Applicants claimed invention is not anticipated by either reference cited by the Examiner. Thus, Applicants respectfully request that the Examiner reconsider and withdraw the rejection under 35 U.S.C. §102.

In light of the above remarks, the presentation of new claims 37-48, and the concurrent submission of corrected drawings, Applicants believe that the Examiner's rejections set forth in the January 30, 2003 Office Action have been fully overcome and that the present application is now in condition for allowance. The Examiner is invited to telephone the undersigned if it is



deemed to expedite allowance of the application.

Respectfully submitted,

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Attachments: Substitute Sequence Listing in paper and computer readable form  
Submission of corrected drawings